

Application No. 10/065,865
RCE and Reply to Advisory Action of May 11, 2009

REMARKS

This paper is responsive to the Advisory Action dated May 11, 2009 and concurrent with a Request for Continued Examination (RCE). By this paper, claims 67 and 68 have been added. Claims 1-26 stand cancelled pursuant to a requirement for restriction/election. No new matter has been added. Claims 27-68 remain pending in this application. In view of the following remarks, Applicants request further examination and reconsideration of the present patent application.

REQUEST FOR RECONSIDERATION

In the Advisory Action, the Examiner indicated that the request for reconsideration had been considered but failed to place the application in condition for allowance because the Affidavit submitted by Applicants on April 14, 2009 was not timely filed. Applicants therefore file this Request for Continued Examination and resubmit for the Examiner's consideration the materials previously submitted.

35 USC 102

In the Final Office action, the Examiner rejected claims 27-29, 47 and 48 under 35 U.S.C 102(e) as being anticipated by Breed (US Patent Publication Number 2003/0227382, hereinafter "Breed"). Applicants respectfully traverse these rejections.

Applicants respectfully submit that Breed is not a proper prior art reference due to Applicants' prior invention of the subject matter set forth in the presently rejected independent claims 27 and 47 and their dependent claims 28, 29 and 48. Upon removal of Breed as a prior art reference under 35 USC 102(e), Applicants submit that the pending claims are in condition for allowance.

Removal of Breed Pursuant to 37 C.F.R §1.131

In view of Applicants' earlier date of invention of the subject matter disclosed and claimed in the present application, Applicants have chosen to remove the Breed reference pursuant to 37 C.F.R. § 1.131. Under Rule 131, Applicants may overcome a prior art rejection by filing an appropriate declaration that establishes invention of the claimed subject matter by Applicants prior to the effective date of the reference relied upon in the rejection. Prior invention may be shown by proving actual reduction to practice prior to the effective date of the reference.

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Applicants respectfully submit that the declaration submitted with this response under 37 C.F.R. § 1.131 establishes prior inventorship with regard to the Breed reference. Further, the declaration submitted with this response under 37 C.F.R. § 1.131 removes Breed as proper prior art against the present application. Accordingly, Applicants submit the enclosed Rule 131 Declaration, signed by Joseph Salvo clearly demonstrates that the invention disclosed and claimed in the present application was conceived and actually reduced to practice prior to the effective date of the Breed reference.

The effective date of Breed is June 11, 2002. In paragraph 4 of the attached Rule 131 Declaration, Joseph Salvo declares that the subject matter disclosed and recited in pending claims 27-29, 47 and 48 of the above-referenced application was conceived and actually reduced to practice by Applicants at least prior to June 11, 2002. This conception and reduction to practice is evidenced by the GE Patent Disclosure Letter titled, "Intelligent e-tags and their applications," a true and accurate redacted copy of which is filed concurrently herewith as Exhibit A. Further, the conception and reduction to practice is also evidenced by a GE presentation, a true and accurate redacted copy of which is filed concurrently herewith as Exhibit B. All of the features recited in the pending claims 27-29, 47 and 48 are disclosed in the referenced Patent Disclosure Letter and the GE presentation. In view of the foregoing, Applicants submit that subject matter disclosed and claimed in the pending claims 27-29, 47 and 48 was conceived and actually reduced to practice at least prior to the June 11, 2002 effective filing date of Breed.

Accordingly, in view of Applicants' earlier conception and reduction to practice, Applicants respectfully request that the Examiner remove Breed from consideration and withdraw all outstanding rejections based on Breed.

35 USC §103

The Examiner rejected claims 30-32, 36, 39, 49, 50, 55 and 58 under 35 U.S.C 103(a) as being unpatentable over Breed (US Patent Publication Number 2003/0227382, hereinafter "Breed").

As discussed above, Breed is not a proper prior art reference 35 U.S.C 102(e) due to Applicants' prior invention of the subject matter set forth in the presently rejected independent claims 27 and 47. Since claims 30-32, 36 and 39 depend directly or indirectly from claim 27, Applicants submit that claims 30-32, 36 and 39 are allowable by virtue of their dependency from an allowable base claim, as well as for the subject matter they separately recite. Further, since

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claims 49, 50, 55 and 58 depend directly or indirectly from claim 47, Applicants submit that claims 49, 50, 55 and 58 are allowable by virtue of their dependency from an allowable base claim, as well as for the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 30-32, 36, 39, under 35 USC §103(a) be withdrawn.

The Examiner rejected claim 59 under 35 U.S.C 103(a) as being unpatentable over Breed (US Patent Publication Number 2003/0227382, hereinafter "Breed") in view of official notice as applied to claim 58 above, and further in view of Ulrich et al. (US Patent Number 6,344,794, hereinafter "Ulrich").

As discussed above, Breed is not a proper prior art reference due to Applicants' prior invention of the subject matter set forth in the presently rejected independent claim 47. In addition, Ulrich fails to obviate the deficiencies in the teachings of Breed. Claim 59 depends directly or indirectly from claim 47, and is allowable by virtue of its dependency from an allowable base claim, as well as for the subject matter it separately recites. Thus, it is respectfully requested that the rejection of claim 59 under 35 USC §103(a) be withdrawn.

The Examiner rejected claims 33-35 and 51-54 under 35 U.S.C 103(a) as being unpatentable over Breed (US Patent Publication Number 2003/0227382, hereinafter "Breed") in view of Ulrich et al. (US Patent Number 6,344,794, hereinafter "Ulrich").

Here again, as discussed above, Breed is not a proper prior art reference due to Applicants' prior invention of the subject matter set forth in the presently rejected independent claims 27 and 47. In addition, Ulrich fails to obviate the deficiencies in the teachings of Breed. Applicants submit that since claims 33-35 depend directly or indirectly from claim 27, and claims 51-54 depend directly or indirectly from claim 47, thus claims 33-35 and 51-54 are allowable by virtue of their dependency from allowable base claims, as well as for the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 33-35 and 51-54 under 35 USC §103(a) be withdrawn.

The Examiner rejected claims 37, 38, 56 and 57 under 35 U.S.C 103(a) as being unpatentable over Breed (US Patent Publication Number 2003/0227382, hereinafter "Breed").

As discussed above, Breed is not a proper prior art reference due to Applicants' prior invention of the subject matter set forth in the presently rejected independent claims 27 and 47. Applicants submit that claims 37 and 38 depend directly or indirectly from claim 27, and claims 56 and 57 depend directly or indirectly from claim 47, thus claims 37, 38, 56 and 57 are allowable by virtue of their dependency from allowable base claims, as well as for the subject

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matter they separately recite. Thus, it is respectfully requested that the rejection of claims 37, 38, 56 and 57 under 35 USC §103(a) be withdrawn.

The Examiner rejected claims 40, 41, 46, 60, 61 and 66 under 35 U.S.C 103(a) as being unpatentable over Breed (US Patent Publication Number 2003/0227382, hereinafter "Breed") in view of Katagishi et al. (US Patent Publication Number 2003/0120745, hereinafter "Katagishi").

As discussed above, Breed is not a proper prior art reference due to Applicants' prior invention of the subject matter set forth in the presently rejected independent claims 27 and 47. In addition, Katagishi fails to obviate the deficiencies in the teachings of Breed. Applicants submit that claims 40, 41 and 46 depend directly or indirectly from claim 27, and claims 60, 61 and 66 depend directly or indirectly from claim 47, thus claims 40, 41, 46, 60, 61 and 66 are allowable by virtue of their dependency from allowable base claims, as well as for the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 40, 41, 46, 60, 61 and 66 under 35 USC §103(a) be withdrawn.

The Examiner rejected claims 42-44 and 62-64 under 35 U.S.C 103(a) as being unpatentable over Breed (US Patent Publication Number 2003/0227382, hereinafter "Breed") in view of Katagishi et al. (US Patent Publication Number 2003/0120745, hereinafter "Katagishi") as applied to claims 40 and 60 above, and further in view of official notice.

As discussed above, Breed is not a proper prior art reference due to Applicants' prior invention of the subject matter set forth in the presently rejected independent claims 27 and 47. In addition, Katagishi fails to obviate the deficiencies in the teachings of Breed. Applicants submit that claims 42-44 depend directly or indirectly from claim 27, and claims 62-64 depend directly or indirectly from claim 47, thus claims 42-44 and 62-64 are allowable by virtue of their dependency from allowable base claims, as well as for the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 42-44 and 62-64 under 35 USC §103(a) be withdrawn.

The Examiner rejected claims 45 and 65 under 35 U.S.C 103(a) as being unpatentable over Breed (US Patent Publication Number 2003/0227382, hereinafter "Breed") in view of Katagishi et al. (US Patent Publication Number 2003/0120745, hereinafter "Katagishi") and further in view of Radican (US Patent Number 6,148,291, hereinafter "Radican").

As discussed above, Breed is not a proper prior art reference due to Applicants' prior invention of the subject matter set forth in the presently rejected independent claims 27 and 47. In addition, Katagishi even in combination with Radican fail to obviate the deficiencies in the

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teachings of Breed. Applicants submit that claim 45 depend directly or indirectly from claim 27, and claim 65 depend directly or indirectly from claim 47, thus claims 45 and 65 are allowable by virtue of their dependency from allowable base claims, as well as for the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 45 and 65 under 35 USC §103(a) be withdrawn.

Accordingly, Applicants respectfully request that the Examiner withdraw the rejection under 35 USC 103.

NEW CLAIMS 67 AND 68

By the present response, Applicants submit new claims 67 and 68 to clarify features of the unique identification information, and to expedite prosecution. Also, claims 67 and 68 recite subject matter that clarifies the features of the unique identification information. Support for the new claims 67 and 68 may be found at page 9 of the present application. No new matter has been added.

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Summary

For the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and allowance of the application are, therefore, respectfully requested.

If the Examiner believes that anything further is necessary to place the application in better condition for allowance, the Examiner is kindly asked to contact Applicants undersigned representative at the telephone number below.

Respectfully submitted,

/Patrick Patnode/
Patrick K. Patnode
Reg. No. 40,121

General Electric Company
Building K1, Room 3A54A
Niskayuna, New York 12309
Telephone: (518) 387-5286
May 19, 2009

GE Patent Disclosure Letter System

~~Exhibit~~

DOCKET NUMBER:

30011

DOCKET DATE

Monday, December 10, 2001

TITLE OF INVENTION

Intelligent e-tags and their applications

GE TECHNOLOGY AREA(S)

Keywords:

Keywords:

Keywords:

Keywords:

Keywords:

PROJECT NAME

PROJECT NUMBER

PROJECT LEADER

4/1/2009

BUSINESS OR ORG. CONTACT INFORMATION

NAME [REDACTED]

PHONE NUMBER [REDACTED]
[REDACTED]

Circumstances (invention Conceived i.e., described in patent notebook (include page #), technical report, letter, discussed in meeting minutes, etc.)

Some ideas came up at intelligent sensors brainstorming session [REDACTED] Some ideas were generated through experimentation with RFID tags and through implementation of an RFID proof-of-concept project.

ABSTRACT OF THE INVENTION

Please write a brief explanation of the invention (Limit to 350 words)

We propose to develop intelligent e-tags (or called functional e-tags) that have at least one of following functions: 1) RFID (radio frequency identification) with sensor capability (sensor tags); 2) RFID with signal processing and/or decision making capability; 3) RFID with tag-to-tag communication capability; and 4) RFID with ultra-low or self-power capability. In general, a RFID tag means an electronic device that can communicate specific identification information through radio frequency communications techniques. Incorporating/integrating sensor capability greatly expands RFID tag's capability in the following ways: 1) It not only stores and communicates its ID information, but also its environment conditions. There are a variety of chemical, physical and biological sensors that can be integrated with RFID tags. These sensor tags can be used for monitoring the location, activity or/and conditions of the tracked assets, machines or processes. For example, a vibration e-tag by combining a vibration sensor and RFID tag can be used to report the vibration level of a heavy machine. 2) Its RFID communication can be controlled by its sensor signals. For example, a speed tag can activate the tag power and record/broadcast its speed once the tag reaches a pre-set speed. The signal processing and decision making (SPDM) capability is very important for distributed signal

processing and pervasive informatics. SPDM system can either be a modular unit or an integrated board on the tag. With SPDM, processed data, rather than raw data, are stored or sent out. Better yet, a decision is sent out to a control unit for automated operation. Tag-to-tag communication enables two-way data sharing, thus localized diagnostic and control. Different tags with different sensing capabilities and decision logic will enable cross analysis of a matrix of information in a collaborative fashion, rather than singular sensor data analysis. Self-powered or micro-/nano-powered tags are critical for tag life. By self-powered, we mean the power source being acquired from the environment, rather than battery. Examples of self power are power generated from temperature gradient, pressure difference, vibration, movement, radio wave background, light, and wind. It can also be considered to use trace level radioactive material without any harm to people to power the tags.

BACKGROUND OF THE INVENTION

Please describe the problem or requirement addressed by your invention.

Current RFID devices are mainly a 'license plate' or self identification devices with limited wireless communication capability. There are many applications where this identification information is inadequate. Some advanced RFID tags may possess memory and/or writable functions. The most advanced RFID tags may even have temperature or power sensing capability. However, there are needs where users may want to know the environmental conditions of the tags or to regulate tag's operation based on specific parameters being monitored. For example, users may want to know whether his delicate shipment has been tilted outside specifications or whether his precision instrument has experienced any impact. Another example would be that a tag may signal if its pressure reading exceeds a pre-determined value - such signal may be either visible, audible, or a combination. Currently, sensors are usually hard wired (point-to-point) and do not indicate identification information. Wiring sensors for power and/or communication is not only expensive, but may also be impossible in many cases. Two-way communication between sensors is critical for localized diagnostics and control. Two-way communication is also important to achieve data reliability with minimum sensors. In the remote service industry where machine health condition is assessed through the sensor data, it is common practice to increase data reliability through the use of multiple sensors for one target variable. This sensor redundancy results in high installation costs and sometimes forces product design change. There are two types of data that are generic to all product and important for most of service industry- one is

static data such as product material, manufacturing date, and product specifications; another one is dynamic data such as operation conditions, and performance parameters. The first type of data can be addressed by an identification code(such as serial number) that may be conveyed through a barcode or a RFID. The second type of data can be obtained by combining local sensor readings and RFID identification codes.

How has this problem or requirement been addressed before?

Product or material identification has been done by physical marking, paper labeling, barcoding or RFID devices. Marking and labeling require extensive manual operation with great potential for error. Barcoding greatly reduces entry errors and speeds up data flow, but still requires manual operation. RFID automates the identification process and can record both static and dynamic information. Operation conditions and environmental parameters can be monitored by many types of sensors. Those sensors can be either integrated into an existing product or produced as add-on devices. Those sensors are usually wired for external power and communication to a collection box such as a computer.

Please list any relevant literature or patents of which you are aware.

DETAILED DESCRIPTION OF THE INVENTION

How does your invention work?

The proposed intelligent e-tags (or called functional e-tags) will have some or all of following features: 1) Wireless identification and sensor data transmission through radio frequency communication 2) signal processing and/or decision making capability, 3) tag-to-tag communication capability, and 4) ultra-low or self-power capability. An intelligent tag will be manufactured by either integrating sensors and RFID tag into one simple chip or by attaching miniature sensors to a special RFID tag that has A/D processing and memory capabilities. Intelligent tags differ from current RFID tags in many aspects. First, they not only store and communicate their ID numbers, but also their environment conditions. Furthermore, the RF communication can be controlled by a designed sensor signal, or the sensor

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operation can be controlled by the RF communication. Lastly intelligent e-tags can conduct two-way communications. Please read appendix 1 for continuation.

Describe the important features of your invention and explain how to use the invention to solve the problems described above.

The most important feature is that intelligent e-tags combine identification, monitoring, processing and wireless communication together. Such an e-tag will enable pervasive informatic networks that will greatly enhance supply chain efficiency and revolutionize the product service industry.

What advantages are provided by your invention?

The advantages are: 1) Tags not only provide ID but also targeted sensor data; 2) Tags with data processing capability (or signal conditioning capability); 3) RFID and sensor can be inter-controllable; 4) tags with two-way communication; and 5) Tags with self-power capability.

Briefly describe any efforts to make a prototype of your invention or to test your invention. Additionally, summarize the results of any related experiments and testing and highlight any results of particular significance.

We have constructed two functions: tags by combining a force sensor and a tilt sensor to an active RFID tag with memory. By applying forces to the force sensor, we can receive the force data wirelessly using a handheld device. The same is achieved for the tilt tag. We are in the process to design a collision tag by integrating an accelerometer with a RFID tag. The tag will be in an inactive mode, but will begin transmitting when there is a collision and the related data (date, time, collision level, collision direction, etc) will be recorded.

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unique identification, wireless (RF) communication, and/or mini-computing ability (processing, memory, read/write). 2) The device can be an integrated piece or an integration of several modular pieces. It may or may not have its own power source. 3) Multiple sensing means the device can sense at least one of performance/environmental parameters such as moisture, speed, pressure, level, tilt, temperature, chemicals, and biological species. Sensors can be either integrated into the RFID board or connected to the board, or both. 4) Sensors can be either powered by an external power source, an internal battery, or self-powered (such as using RF radiation, or powered gathered from environment (e.g. photon energy, thermal energy and vibration energy). 5) Preferred sensors are those that can be miniaturized with extremely low power consumption. Examples of these sensors are micromachined sensors such as accelerometer, thermal, pressure, motion, etc. However, if the tag is powered by photovoltaic cell or wind or other environmental power sources, sensor power consumption is not a big issue. 6) Sensors can be either integrated part of RFID tag or an independent part that is connected to the tag. We have proposed to use MEMS technologies (but not exclusive to MEMS) to fabricate sensor and tag onto the same chip. 7) The tag unique identification can be permanently embedded into the tag memory or can be changed when needed. 8) The tag has data processing capability and can store and broadcast selective data. 9) The tag possesses two-way communication capability and recognizes the communicating party.

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Exhibit B

IN SUPPORT OF DECLARATION OF INDEPENDENCE

THE JOURNAL OF CLIMATE

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THE AMERICAN JOURNAL OF THEOLOGY AND PHILOSOPHY

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Functional Options

• Productivity Options
• Advanced Features

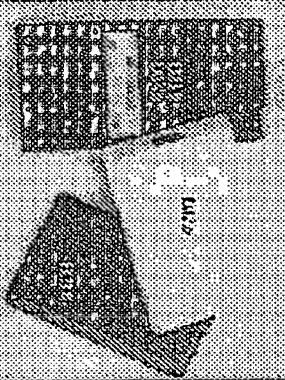
EASIC Functions

• Easier document processing
• Simplified document creation

PRINT TAGS

• Print tags for document management

• Document tracking and reporting



• Advanced document processing
• Simplified document creation

• Document tracking and reporting

• Advanced document processing

• Simplified document creation

• Document tracking and reporting

• Advanced document processing

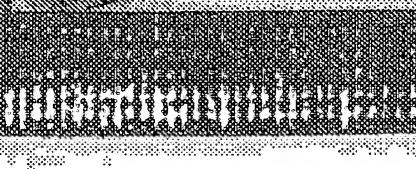
• Simplified document creation

• Document tracking and reporting

• Advanced document processing

• Simplified document creation

• Document tracking and reporting



Wireless Devices

Proposed Devices to be used

HANDHELD RFID READERS

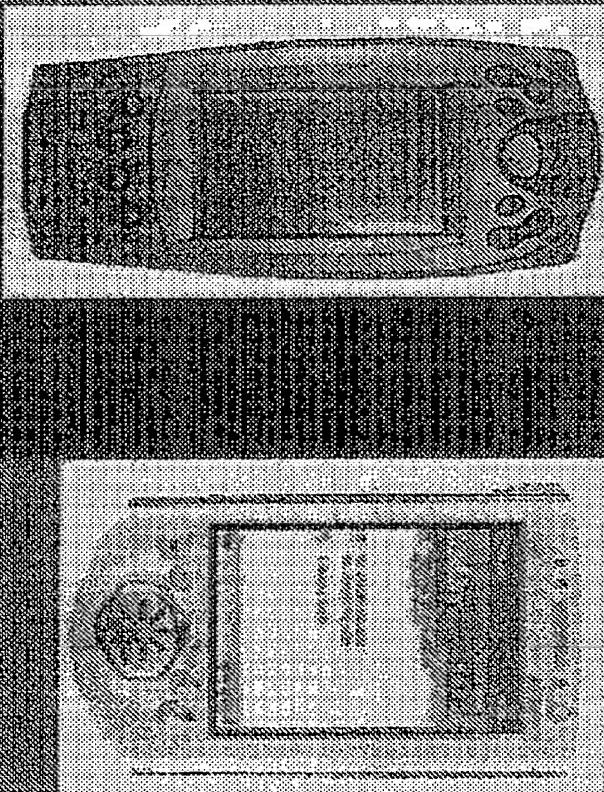
Basic Functions:

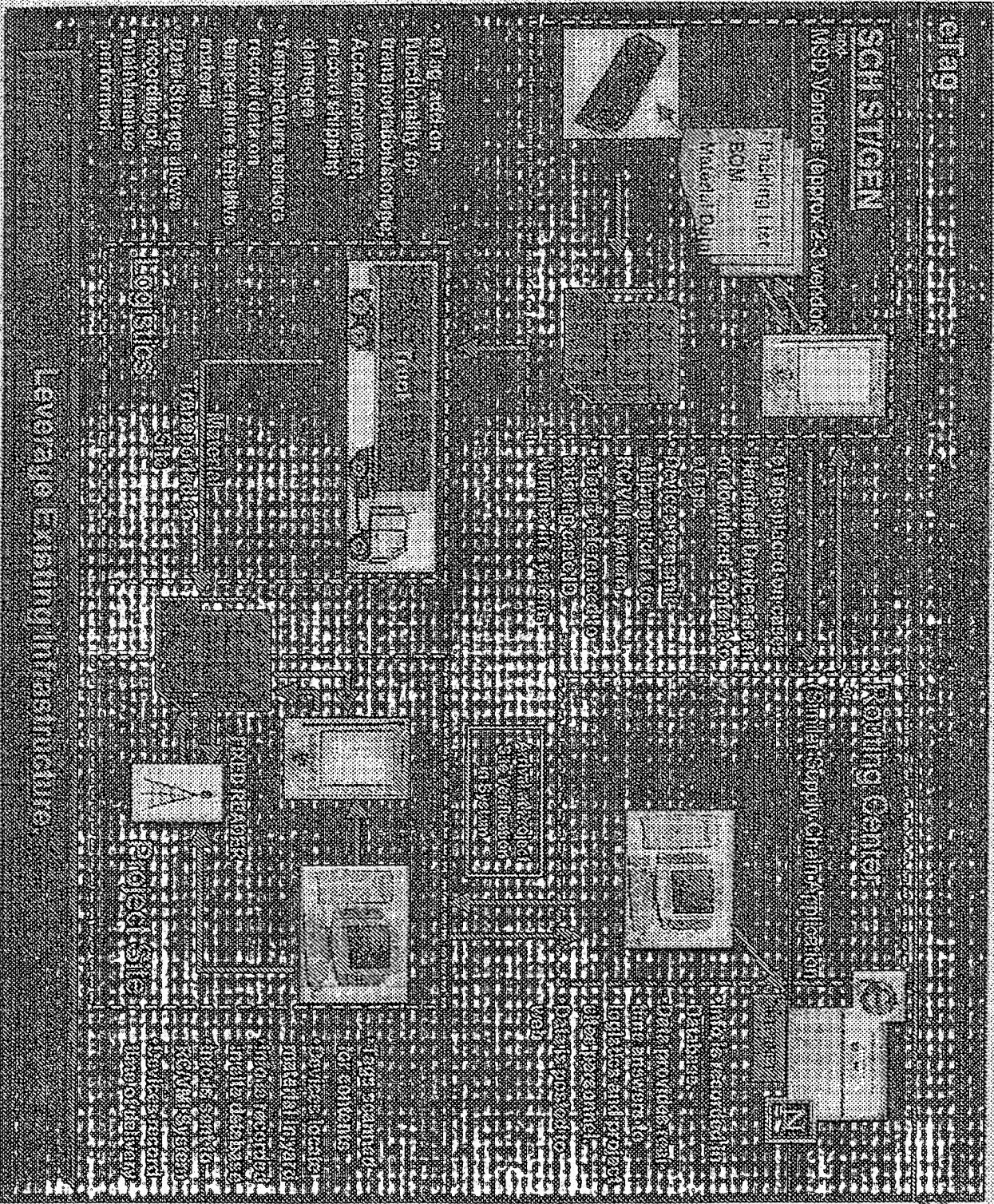
- Barcode Device Interface
- Magnetic Stripe Interface
- Windows CE

Optional Functions:

- Barcode Scanner – Reads standard bar code formats
- RFID – Reads and writes radio frequency ID data
- Wireless Communication – Connects to wireless LAN
- Data Logging – Records scanned date

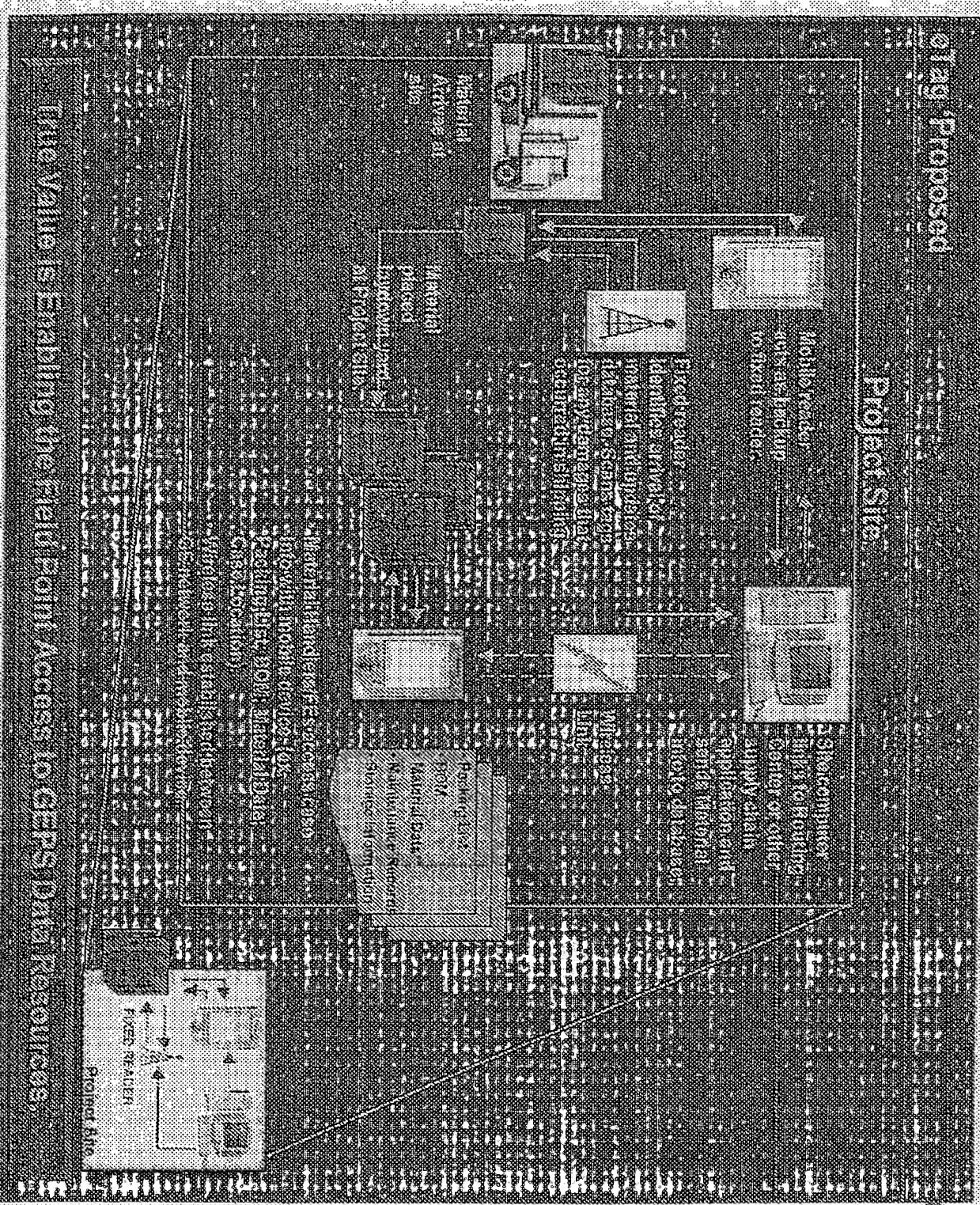
Symbol
Ipau 3600 Series





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Green Belt Projection in North America

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MATERIALS AND METHODS

ANNUAL REPORT OF THE STATE BOARD OF EDUCATION

Problem Statement / Project Scope

Sohm's Selected

Benefits	Cost	Impact
Improved quality of life	High initial investment	Long-term savings
Reduced healthcare costs	Medium ongoing costs	Significant reduction in medical expenses
Enhanced physical fitness	Low ongoing costs	Improved overall health and well-being
Increased energy levels	Medium initial investment	Improved productivity and performance
Improved cognitive function	High initial investment	Enhanced memory and mental clarity
Reduced risk of chronic diseases	Medium ongoing costs	Lower incidence of heart disease, diabetes, and other health issues
Improved sleep quality	Low ongoing costs	Better rest and reduced fatigue
Improved social interaction	Medium initial investment	Stronger social connections and reduced isolation
Improved self-esteem and confidence	High initial investment	Higher self-worth and better mental health

Benefit Summary

- the first time in the history of the world, the
whole of the human race has been gathered
together in one place, and that is the
present meeting of the World's Fair.

